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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/837,459	04/19/2001	Hiroshi Izawa	35.C15313	6750

5514 7590 03/12/2004

FITZPATRICK CELLA HARPER & SCINTO  
30 ROCKEFELLER PLAZA  
NEW YORK, NY 10112

EXAMINER

ZERVIGON, RUDY

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 03/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/837,459	<b>Applicant(s)</b> IZAWA ET AL.	
	<b>Examiner</b> Rudy Zervigon	<b>Art Unit</b> 1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 January 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 7-12 and 17-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 13-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 April 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some    \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>8/19/2002</u> . | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Election/Restrictions***

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-6, and 13-16, drawn to a deposited film forming apparatus, classified in class 118, subclass 663.
  - II. Claims 7-12, and 17-21, drawn to a deposited film forming process, classified in class 427, subclass 248.1.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, the apparatus as claimed can be used to practice another and materially different process, for example, an etching process.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
4. During a telephone conversation with Peter Saxon on February 27, 2004 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-6, and 13-16. Affirmation of this election must be made by applicant in replying to this Office action. Claims 7-12, and 17-21 withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

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5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

### ***Drawings***

6. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “evacuation means”, “first evacuation piping”, “second evacuation piping”, “piping connection part” must be shown or the features canceled from the claims. No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 1-6 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which

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it is most nearly connected, to make and/or use the invention. Applicant claims “evacuation means”, yet does not specifically identify what Applicant believes is “evacuation means” or equivalents therefore. The Examiner assumes through the course of the action that Applicant’s “evacuation means” is Applicant’s vacuum pump 106, Figure 1. The same argument above applies for Applicant’s “first evacuation piping”, “second evacuation piping”, and “piping connection part (52a; Figure 4)”.

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 2 requires “wherein the temperature sensor is provided on an outer wall surface of the chamber or at the evacuation piping”. It is uncertain if “the evacuation piping” is the “first evacuation piping” or the “second evacuation piping”.

### ***Claim Rejections - 35 USC § 102***

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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12. Claims 1, 2, 4, and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Yamasaki, Hideaki et al (US 20030037730 A1). Yamasaki teaches:

- i. A deposited-film formation apparatus (Figure 1; [0016]) comprising: an inside-evacuatable chamber (10; Figure 1; [0046]); a gas feed piping (12; Figure 1; [0046]) for feeding a material gas into the chamber (10; Figure 1; [0046]); an evacuation means (26; Figure 1; [0051]) for evacuating the inside of the chamber (10; Figure 1; [0046]); a first evacuation piping (36; Figure 1) which connects the chamber (10; Figure 1; [0046]) and the evacuation means (26; Figure 1; [0051]); and a second evacuation piping (34; Figure 1) for guiding evacuation through the evacuation means (26; Figure 1; [0051]), wherein, the deposited-film formation apparatus (Figure 1; [0016]) has a temperature sensor (64; Figure 4; [0084]), as claimed by claim 1

Applicant's additional claim limitation of a "temperature sensor which detects the heat of reaction that is generated when the material gas fed into the chamber reacts with oxygen contained in air having entered from the outside of the deposited-film formation apparatus" is a requirement of intended use. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter , 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto , 136 USPQ 458, 459 (CCPA 1963); MPEP 2111.02). That Yamasaki's temperature sensor (64; Figure 4; [0084] – "thermocouple") measures heat (by

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definition), a heat “of reaction” is indistinguishable from other heats especially when the claim 1 “heat of reaction” is between an unknown reactant of “the material gas” and oxygen. Further, that Yamasaki’s temperature sensor (64; Figure 4; [0084] – “thermocouple”) is capable of measuring a “heat” of reaction is provided by Yamasaki:

“

[0084] A thermocouple 64, i.e., a temperature sensor, is detachably attached to the trap body 56. The thermocouple 64 has an output terminal connected to a heater power controller by a wire 66. Power is supplied from the heater power supply circuit to the built-in heating coil 54 embedded in the heater body 52 to generate heat by the heater coil 54. Heat generated by the heater coil 54 is transferred through the heater body 52 to the trap body 56 to heat the trap body 56 and the trapping plates 60. The heater power controller controls power supply to the heating coil 54 so that the temperatures of the trap body 56 or the trapping plates 60 coincide with a predetermined reaction temperature or a predetermined trapping temperature.

“

- ii. The deposited-film formation apparatus (Figure 1; [0016]) according to claim 1, wherein the temperature sensor (64; Figure 4; [0084]) is provided at the evacuation piping, as claimed by claim 2 – Yamasaki:

“

[0078] FIG. 4 shows a trapping device in a first embodiment according to the present invention suitable for use as the high-temperature trapping device 28.

“

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- iii. The deposited-film formation apparatus (Figure 1; [0016]) according to claim 1, wherein the first evacuation piping (36; Figure 1) has a piping connection part (52a; Figure 4), and the temperature sensor (64; Figure 4; [0084]) is provided on the side downstream to the piping connection part (52a; Figure 4), as claimed by claim 4
- iv. A vacuum system comprising: a chamber (10; Figure 1; [0046]); a gas feed means for feeding a gas into the chamber (10; Figure 1; [0046]); and an evacuation means (26; Figure 1; [0051]) and an evacuation piping (34, 36; Figure 1) by and through which the inside of the chamber (10; Figure 1; [0046]) is evacuated, wherein, the vacuum system has a temperature sensor (64; Figure 4; [0084]), as claimed by claim 16 –

Applicant's additional claim limitation of a "temperature sensor which detects the heat of reaction that is generated when the material gas fed into the chamber reacts with oxygen contained in air having entered from the outside of the deposited-film formation apparatus" is a requirement of intended use. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter , 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto , 136 USPQ 458, 459 (CCPA 1963); MPEP 2111.02). See above.



***Claim Rejections - 35 USC § 103***

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 3, 5, and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamasaki, Hideaki et al (US 20030037730 A1) in view of Carlsen, Kurt A. et al. (US 6,155,289

A). Yamasaki is discussed above. Yamasaki does not teach:

- i. Yamasaki's deposited-film formation apparatus (Figure 1; [0016]) according to claim 1, wherein Yamasaki's temperature sensor (64; Figure 4; [0084]) is provided on the side downstream to Yamasaki's evacuation means (26; Figure 1; [0051]), as claimed by claim 3
- ii. Yamasaki's deposited-film formation apparatus (Figure 1; [0016]) according to claim 1, which has a leak judgment means which judges the occurrence of a leak on the basis of a measured value of Yamasaki's temperature sensor (64; Figure 4; [0084]), and a feed-gas feed control means which stops the feeding of material gases upon detection of a leak by the leak judgment means, as claimed by claim 5
- iii. a leak judgment means which judges the occurrence of a leak on the basis of a measured value of Yamasaki's temperature sensor (64; Figure 4; [0084]), as claimed by claim 13
- iv. Yamasaki's deposited-film formation apparatus (Figure 1; [0016]) according to claim 13, wherein Yamasaki's temperature sensor (64; Figure 4; [0084]) is provided in plurality, and the leak judgment means judges the leak to have occurred when the measured values of the

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temperature sensor (64; Figure 4; [0084]) provided in plurality increase, as claimed by claim 14

- v. Yamasaki's deposited-film formation apparatus (Figure 1; [0016]) according to claim 14, wherein Yamasaki's temperature sensor (64; Figure 4; [0084]) are provided along the flow of gas, and the leak judgment means judges the leak to have occurred when the measured values of the temperature sensor (64; Figure 4; [0084]) increase along the flow of gas, as claimed by claim 15

Carlsen teaches a leak detection system (Figure 1; column 4, lines 23-51) including:

- vi. Carlsen's deposited-film formation apparatus (Figure 1; column 1, lines 10-28), which has a leak judgment means (40; Figure 1; column 4, lines 23-51) which judges the occurrence of a leak on the basis of a measured value of Carlsen's temperature sensor (60; Figure 1; column 4, lines 23-51), and a feed-gas feed control means (40; Figure 1; column 4, lines 23-51) which stops the feeding of material gases upon detection of a leak by the leak judgment means, as claimed by claim 5

Support for "leak judgment means" is found in section [0025]. Specifically, the specification teaches:

"

The present invention still further provides a leak judgment method comprising the steps of feeding a reactive gas to the inside of a vacuum system having a chamber and an evacuation piping, measuring temperature of the vacuum system at a plurality of spots thereof, and judging the occurrence of a leak on the basis of a change with time of a plurality of measured values obtained by measuring the temperature.

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“

Carlsen teaches a leak judgment method comprising the steps of feeding a reactive gas (14; Figure 1) to the inside of a vacuum system having a chamber (50) and an evacuation piping (54), measuring temperature (60; Figure 1; column 4, lines 23-51) of the vacuum system at a plurality of spots thereof, and judging the occurrence of a leak on the basis of a change with time of a plurality of measured values obtained by measuring the temperature - column 4, lines 23-51. As such, Carlsen teaches an equivalent apparatus that performs the function of leak detection. As a result, Carlsen's prior art elements of 50, 54, and 60 for leak detection perform the identical function of leak detection in substantially the same way, and produces substantially the same results as the corresponding elements disclosed in the specification (MPEP 2183).

- vii. a leak judgment means (40; Figure 1; column 4, lines 23-51) which judges the occurrence of a leak on the basis of a measured value of Carlsen's temperature sensor (60; Figure 1; column 4, lines 23-51), as claimed by claim 13
- viii. Carlsen's deposited-film formation apparatus (Figure 1; column 1, lines 10-28) according to claim 14, wherein Carlsen's temperature sensor (60; Figure 1; column 4, lines 23-51) is provided along the flow of gas (26, Figure 1), and the leak judgment means (40; Figure 1; column 4, lines 23-51) judges the leak to have occurred when the measured values of the temperature sensor (60; Figure 1; column 4, lines 23-51) increase along the flow of gas, as claimed by claim 15

It would have been obvious to one of ordinary skill in that art at the time the invention was made to add Carlsen's leak judgment means to Yamasaki's down-stream piping (38; Figure 1) including adding plural temperature sensors.

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Motivation to add Carlsen's leak judgment means to Yamasaki's down-stream piping including adding plural temperature sensors is to prevent system gas line leaks as taught by Carlsen (column 4, lines 28-51). Further, it is well established that the duplication of parts is obvious (In re Harza , 274 F.2d 669, 124 USPQ 378 (CCPA 1960) MPEP 2144.04).

15. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamasaki, Hideaki et al (US 20030037730 A1) in view of Saitoh, Keishi et al. (US 5,417,770 A). Yamasaki is discussed above. Yamasaki does not teach the deposited-film formation apparatus (Figure 1; [0016]) according to claim 1, which has the chamber (10; Figure 1; [0046]) in plurality and a means for moving a beltlike member continuously through the insides of the chambers in their lengthwise direction.

Saitoh teaches plural chambers (2002, 2031, ...; Figure 20) including means for moving a beltlike member (2004-2007; Figure 20).

It would have been obvious to one of ordinary skill in that art at the time the invention was made to reproduce Yamasaki's deposited-film formation apparatus (Figure 1; [0016]) and add Saitoh's means for moving a beltlike member.

Motivation to reproduce Yamasaki's deposited-film formation apparatus and add Saitoh's means for moving a beltlike member is to produce photovoltaic devices by CVD as taught by Saitoh (column 1, lines 20-25).

### ***Conclusion***

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Rudy Zervigon whose telephone number is (571) 272.1442. The examiner can normally be reached on a Monday through Thursday schedule from

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8am through 7pm. The official after fax phone number for the 1763 art unit is (703) 872-9306.

Any Inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Chemical and Materials Engineering art unit receptionist at (571) 272-1700. If the examiner can not be reached please contact the examiner's supervisor, Gregory L. Mills, at (571) 272-1439.

*Handwritten signature: Rudy J. Wenger*  
*2/8/4*  
*1334*